1948 **COMMUNICATION (Information Theory)** **C E Shannon (USA)**

The term 'Information Theory' is used in the current technical literature with many different senses. Historically it seems first to have been generally applied to describe the specific mathematical model of communication systems developed in 1948 by Shannon. In this pioneering paper, Shannon introduced a numerical measure, called by him and others entropy, of the randomness or uncertainty associated with a class of messages and showed that this quantity measures in a real sense the amount of communication facility needed to transmit with accuracy messages from the given class. He also showed (quite incidentally to his main argument) that this measure of uncertainty agreed in certain aspects with the common, vague intuitive notion of the 'information content of a message'. He accordingly used the words 'information content' as a synonym for the precisely defined notion of entropy. As a result, his work and its immediate extensions became known as information theory.

SOURCE: 'Information Theory' by B McMillan and D Slepian *Proc. IRE* pp 1151/2 (May 1962)

SEE ALSO: *The Mathematical Theory of Communication* by C E Shannon and W Weaver (Urbana, IL: University of Illinois Press) (1949)